National Institute for Occupational Safety and Health
NIOSH

TIP SHEET #12

Skid Plates to Move Concrete-Filled Hoses

The Problem

Charged concrete hoses are heavy and pulling them takes a lot of strength. The latches on a hose may snag on rebar. Workers must sometimes bend down and lift the hose to free it.

Pulling, lifting, and moving sections of hose can force your body into awkward positions and put strain on your lower back and knees. If you have to use jerking motions or twist your body while doing this work, there is even more strain on your back. Handling concrete hoses, especially for long periods of time, may cause fatigue, back pain, and even serious muscle or joint injuries.

Problem: Pulling concrete hose without skid plate

Solution: Pulling hose with skid plate and hook

One Solution

Skid plates (also known as "hose placing discs") may be useful when concrete boom pumps and other alternative ways of moving the concrete cannot be used. Skid plates are two-foot diameter concave metal disks that are placed under the hose couplings. They have a cradle to hold the hose and handles for carrying. They decrease the friction with the rebar matting underneath and make the hose easier to pull. They also prevent the latches on the hose from catching on the rebar.

Skid plate

How It Works

Laborers usually move concrete-filled hoses across rebar matting by pulling on ropes attached to the hose, or by using long metal hooked rods.

Skid plates slide more easily across the rebar matting, reducing the friction. Pulling is easier. Also, hose couplings do not catch on the rebar matting. This decreases the need for laborers to jerk the hose or bend over to free it.

From four to six skid plates should be used near the pour end of the hose. They are most effective when the hose is secured to each plate. You can fasten the hose to a plate with rebar tying wire or rubber bungee cords. Both can quickly be removed when necessary. Using *unsecured* skid plates may lead to more bending, awkward positions, and back strain.

Benefits for the Worker and Employer

At least one study has found that using skid plates secured to the hose can reduce stress to the low back that otherwise would increase the chance of developing a serious injury.

Use of secured skid plates does not result in loss of productivity. It takes only moments to place skid plates under hoses and secure them. If workers are less fatigued from pulling heavy hoses, productivity may actually increase.

There are a few drawbacks. For example, it is still possible for skid plates to catch on Nelson studs (4" tall steel rods welded to the subflooring to reinforce the concrete). Skid plates reduce the physical stress of pulling a hose, but they don't get rid of it. The plates should be used only when the charged hose cannot be moved with a boom, crane, or motorized concrete placement equipment.

Approximate Cost

Prices run about $200–300 per plate.

For More Information

- Products related to this solution are described at *www.cpwr.com/simple.html*. Products also may be found on the internet using the following search terms: "concrete" + "hose placing disc."
- Local contractor tool and equipment suppliers or rental companies may be another source of information on products.
- For general information on this solution, check *www.cpwrconstructionsolutions.org* and *www.elcosh.org*.